CLAIMS

1. An adjustable hinge assembly pivotally mounting a vehicle door to a vehicle body structure about an axis of rotation, comprising:

a door mounting plate;

a hinge plate that is pivotally connected to said door mounting plate by a hinge pin, said hinge plate having a spherically concave bottom surface;

a body-mounting plate having a first flat surface for attachment to said vehicle body structure and a second spherically convex surface for engaging said spherically concave bottom surface of said hinge plate;

means for adjustably attaching said hinge plate to said body-mounting plate; and

means for attaching said adjustable hinge assembly to said vehicle body structure once a desired axis of rotation alignment has been achieved.

2. An adjustable hinge assembly as in claim 1, wherein said means for adjustably attaching said hinge plate to said body-mounting plate is a bolt that is longitudinally retained to extend from said hinge plate and through an oversized aperture in said body mounting plate, whereby said body-mounting plate has some freedom of movement with respect to said hinge plate over their respective spherical surfaces.

3. An adjustable hinge assembly as in claim 1, wherein said means for attaching said adjustable hinge assembly to said vehicle body structure is by a first bolt that is longitudinally retained to extend from said hinge plate and passing through an oversized aperture in said body-mounting plate and into said vehicle body structure and a second bolt passing through an aperture in said hinge plate and through an oversized aperture in said body-mounting plate and into said vehicle body structure.

4. An adjustable hinge assembly as in claim 3, wherein said first bolt is not fixedly attached to said hinge plate and it and said second bolt each pass through an aperture in said hinge plate and through oversized apertures in said body-mounting plate and on to said vehicle body structure.

5. A method of mounting a vehicle door to a vehicle body structure using an adjustable hinge assembly, said adjustable hinge assembly having a door mounting plate,

a hinge plate that is pivotally connected to the door mounting plate by a hinge pin, said hinge plate having a spherically concave bottom surface, and a body-mounting plate having a first flat surface for attachment to said vehicle body structure and a second spherically convex surface for engaging said spherically concave bottom surface of said hinge plate, the method comprising:

attaching a first adjustable hinge assembly to said vehicle door;

attaching a second hinge assembly to said vehicle door;

fixedly attaching said second hinge assembly to said vehicle body structure;

loosely attaching said first adjustable hinge assembly to said vehicle body structure;

aligning said first adjustable hinge assembly with said second hinge assembly by sliding the spherically concave bottom surface of said hinge plate against the spherically convex surface of the body-mounting plate; and

fixedly attaching said first adjustable hinge assembly to said vehicle body structure.

6. A method of mounting a vehicle door to a vehicle body structure as in claim 5, wherein said second hinge assembly is an adjustable hinge assembly and wherein said second adjustable hinge assembly is first loosely attached to said vehicle body structure prior to aligning the vehicle door with respect to said vehicle body.

7. A hinge assembly for providing pivot axis adjustment while mounting a door to a body, comprising:

a body mounting plate member having a first surface that is attachable to said body and a second surface defining a portion of a sphere of predetermined radius;

a hinge plate member having a first portion that retains a hinge pin along a first pivot axis and a second portion with a adjustment surface defining a portion of a sphere corresponding in shape to said second surface of said body mounting plate member; and

a door mounting member having a first portion that is attachable to said door and a second portion connected to said hinge pin for pivoting about said first pivot axis,

wherein said corresponding spherical surfaces are in opposition to allow movement therebetween and to seek alignment of said hinge pin with the pivot axis of a second hinge assembly mounted between said body and said door during the process of mounting the door to body.

8. An adjustable hinge assembly as in Claim 7, wherein said second surface of said body mounting plate member is convex and said adjustment surface is concave.

9. An adjustable hinge assembly as in Claim 8, wherein the area of said second surface of said body mounting plate member is larger than the area of said adjustment surface.

10. An adjustable hinge assembly as in Claim 8, wherein said body mounting plate member and said hinge plate member are loosely connected together with said spherical surfaces in substantial opposition during the process of mounting the door to body.

11. A method of adjusting the pivot axis of a first hinge while mounting a door to a body, comprising the steps of:

providing a body mounting plate member having a first surface that is attachable to said body and a second surface defining a portion of a sphere of predetermined radius;

providing a hinge plate member having a first portion that retains a hinge pin along a first pivot axis and a second portion with a adjustment surface defining a portion of a sphere corresponding in shape to said second surface of said body mounting plate member;

providing a door mounting member having a first portion that is attachable to said door and a second portion connected to said hinge pin for pivoting about said first pivot axis;

orienting said corresponding spherical surfaces in opposition to allow movement therebetween;

providing a second hinge between said door and said body;

securely attaching said second hinge at a predetermined location between said door and said body to define the pivot axis of said door;

securely attaching said door mounting member to said door;

loosely attaching said body mounting plate member and said hinge plate member to said body;

allowing said hinge pin to seek alignment with the pivot axis of said second hinge assembly; and

securing said attachment of said body mounting plate member and said hinge plate member to said body.

12. A method as in Claim 11, wherein said body mounting plate member is provided with a convex surface and said hinge plate member is provided with a concave adjustment surface.

13. A method as in Claim 12, wherein the area of said second surface of said body mounting plate member is provided with a larger area than that of said adjustment surface.